

On page 2, before the first sentence, insert the heading --FIELD OF THE INVENTION--.

On page 2, between lines 13 and 14, insert the heading --BACKGROUND OF THE INVENTION--.

On page 5, before line 1, insert the heading --BRIEF DESCRIPTION OF THE INVENTION--.

On page 6, between lines 36 and 37, insert the heading --BRIEF DESCRIPTION OF THE DRAWINGS--.

On page 7, between lines 5 and 6, insert the heading --DETAILED DESCRIPTION OF THE INVENTION--.

#### IN THE CLAIMS

Kindly cancel original claims 1-9, without prejudice, and add the following claims:

10. (New) A system for controlling the melting of a glass batch in a glass melting furnace and comprising:
- a plurality of sensors for detecting operating conditions in a furnace;
  - means for creating, and analyzing images taken inside a furnace in accordance with a predetermined mathematical model;
  - a predictive network which, depending on the state of the furnace and information regarding changes in production over time, defines various set point values assigned to furnace actuators;
  - means for storing operator set points corresponding to manual operation of furnace actuators under preselected conditions;
  - fuzzy logic controller means running a fuzzy logic control algorithm and connected at respective inputs to the sensors, image means, predictive network, and

operator set points storing means, the controller means generating output signals for the actuators and control devices that will control melting in the furnace.

11. (New) The system set forth in claim 10 wherein the predictive network further comprises means for learning operating laws of the furnace.

12. (New) The system set forth in claim 10 wherein the means for creating, and analyzing images further comprises at least one video camera; and means for processing images obtained from the camera and producing information therefrom that is input to the algorithm.

13. (New) The system set forth in claim 10 wherein the predictive network delivers information for defining the set points that are to be applied to actuators.

14. (New) The system set forth in claim 11 wherein the learning means is operated in accordance with a computer model of the numerical model type, making it possible to define the laws of furnace operation, selectively from a learning phase of the predictive network, from actual furnace operation, or by simulation of furnace operation using a mathematical model.

15. (New) The system set forth in claim 12 wherein the camera is positioned in the furnace to observe the distribution of glass batch fed into the furnace, of the position of the batch piles and of their speed, and a plurality of parameters relating to the appearance of the batch as it melts on the surface of the glass melt.

16. (New) The system set forth in claim 12 wherein the camera is positioned in the furnace to observe the shape and distribution of flames from burners inside the furnace.